National Air Intelligence Center

NAIC SUPPORT TO INFORMATION OPERATIONS

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13. ABSTRACT *(Maximum 200 Words)*

Provide NAIC IO mission overview and demonstrate the Dynamic Information Operations Decision Environment (DIODE) production process. This briefing was presented during the Phoenix Challenge 2002 Conference & Warfighter Day.

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Purpose

Provide NAIC IO mission overview and demonstrate the Dynamic Information Operations Decision Environment (DIODE) production process

Overview

- NAIC's IO Mission
- IO Production Process--DIODE
- Joint DIODE
- Summary

AF IO Mission

Information-in Warfare

GAIN **EXPLOIT**

Information Warfare

ATTACK

DEFEND

INFORMATION

…to ensure superiority in the air, space, and information domains

NAIC Information Operations

- Enable information attack
  - Define foreign information systems
  - Determine foreign decision-making processes
  - Characterize foreign space assets
  - Characterize foreign computer networks
- Enable information defend
  - Define foreign IO threat
  - Determine threat to Western space & navigation assets
  - Assess foreign denial and deception activities

NAIC Information Operations

Attack-enabling

- Aerospace C2 Processes
- Aerospace C2 Systems
- Natl Telecomm Networks

Defense-enabling

- Counter Space
- Foreign IO
- Denial & Deception

The Challenge

"The challenge for joint force commanders normally is not to amass more data but to extract and organize the knowledge most useful for overcoming the enemy"

JOINT PUB 1 - Joint Warfare of the US Armed Forces

The DIODE production process creates knowledge

Why DIODE?
The Need for Information

- **IW represents evolution in US strategy from hard kill of C2 infrastructure to a full range of targeting options**
  - **Effects-based**
  - **Deceive, Deny, Degrade, Disrupt, Destroy Information**
- **Demands detailed, comprehensive knowledge**
  - **Forensic level S&TI analysis**
  - **Process-centric analysis**

Why DIODE?
The Need for Speed

- **Very high ops tempo**
  - **Pre-positioned intelligence knowledge**
  - **Dynamic updates**
- **Unpredictable customer demand**
  - **Intel product must be adaptive**

Why DIODE?
The Need for Efficiency

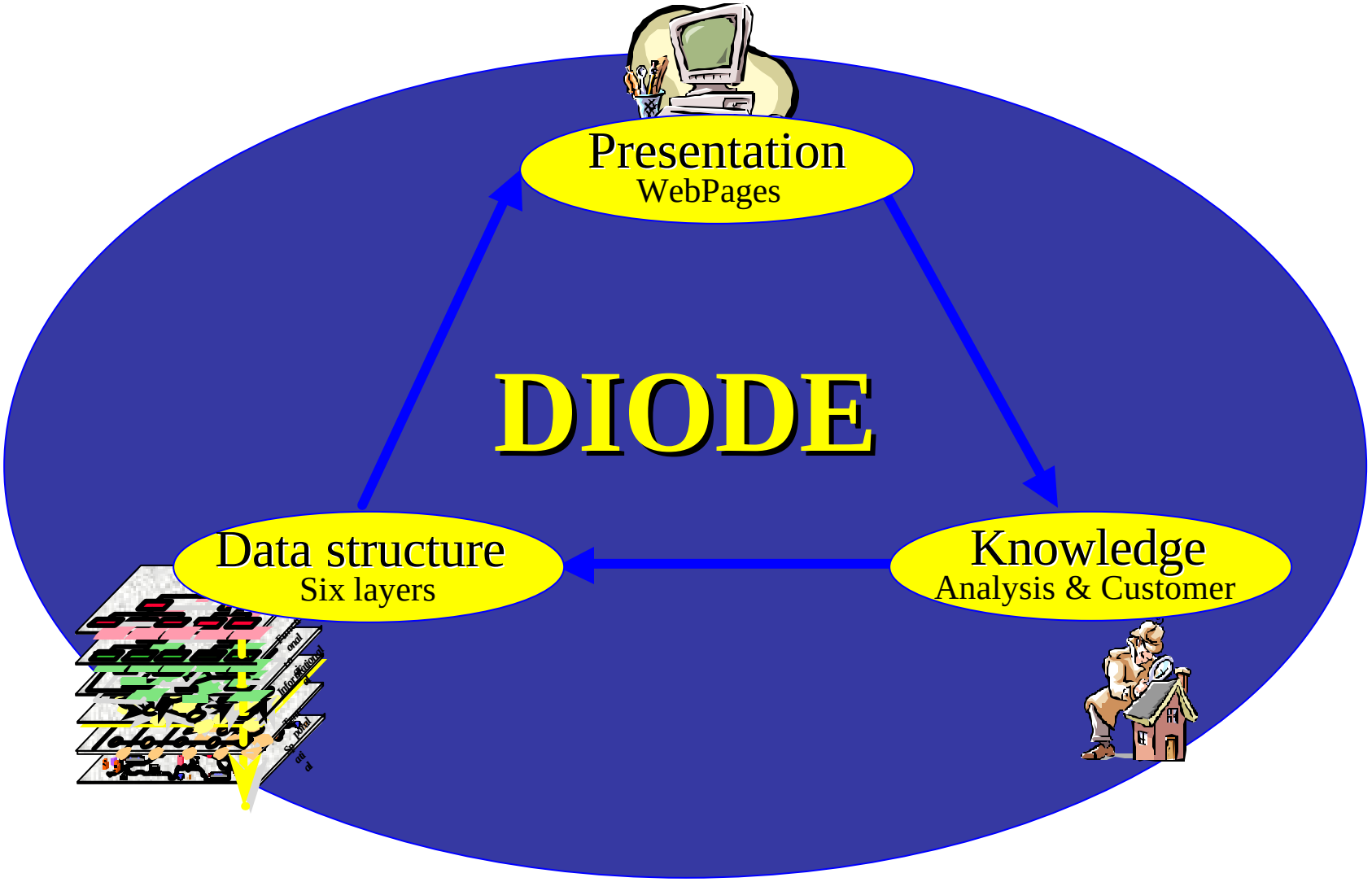
- **Limited analytical resources**
  - **Must leverage prior production**
- **Analyst turnover**
  - **Capture corporate knowledge base**

What Is DIODE?

- A Comprehensive Picture of Info Battlespace
  - Foreign Ballistic Missile, Air, Air Defense, Space, and Counterspace C4ISR/IO
- Enables Effects-Based Operations
  - Gives the JTF the Knowledge to Enable Full Range of Attack Options
- All-source, Finished Intelligence
- Integrated Network & Process Models

It Is a Knowledge Base & Process – Not Just a Database

DIODE Concept

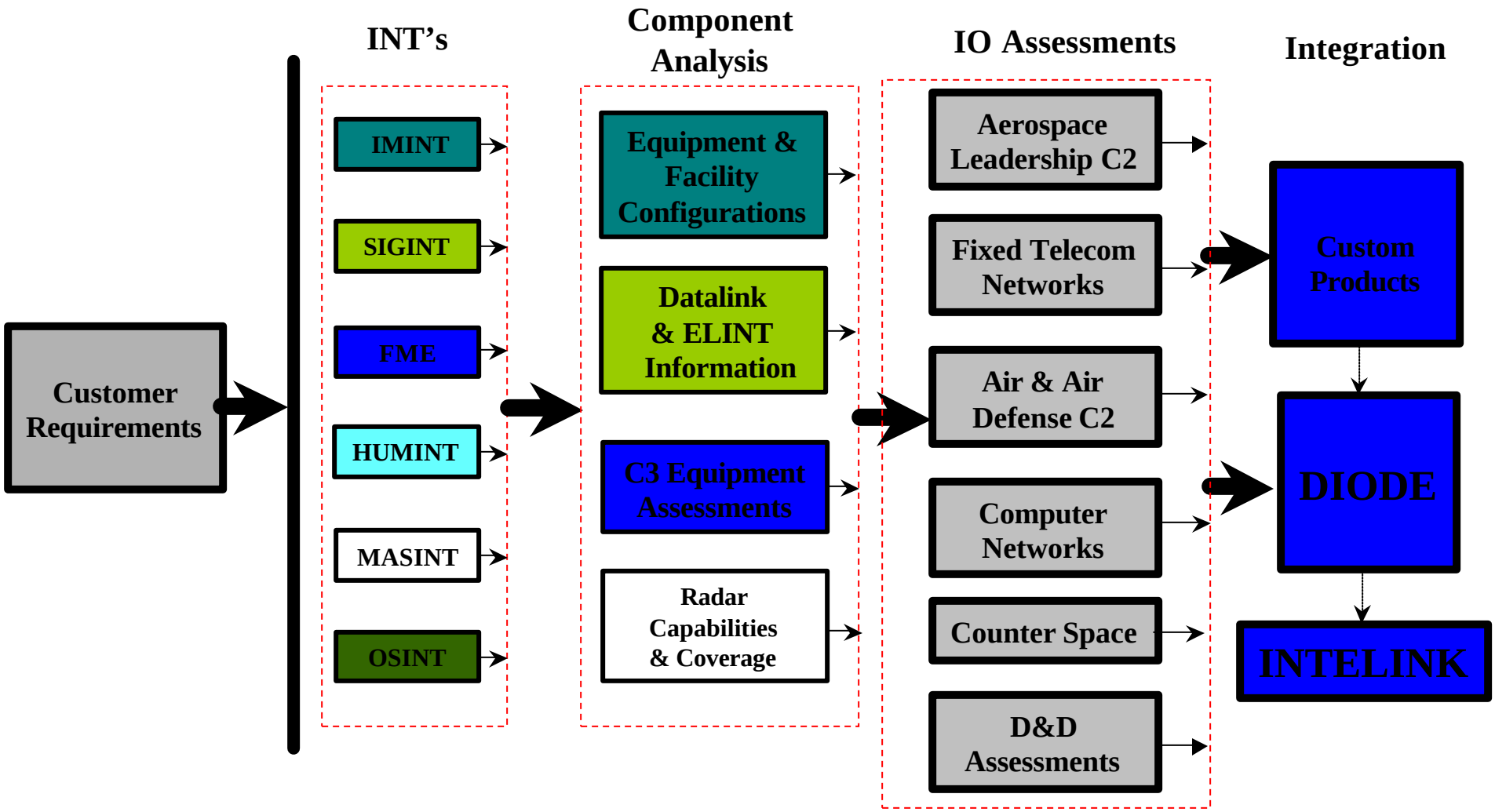


The DIODE Process

- **DIODE is set of on-going PROCESSES that:**
  - **Collect, process, and interpret data**
  - **Analyze, synthesize, and discover to establish information**
  - **Provide decision-makers with knowledge about the situation**
  - **Assist the commander in achieving understanding**
  - **Respond to customer feedback, goals, and objectives**

The process is the product!

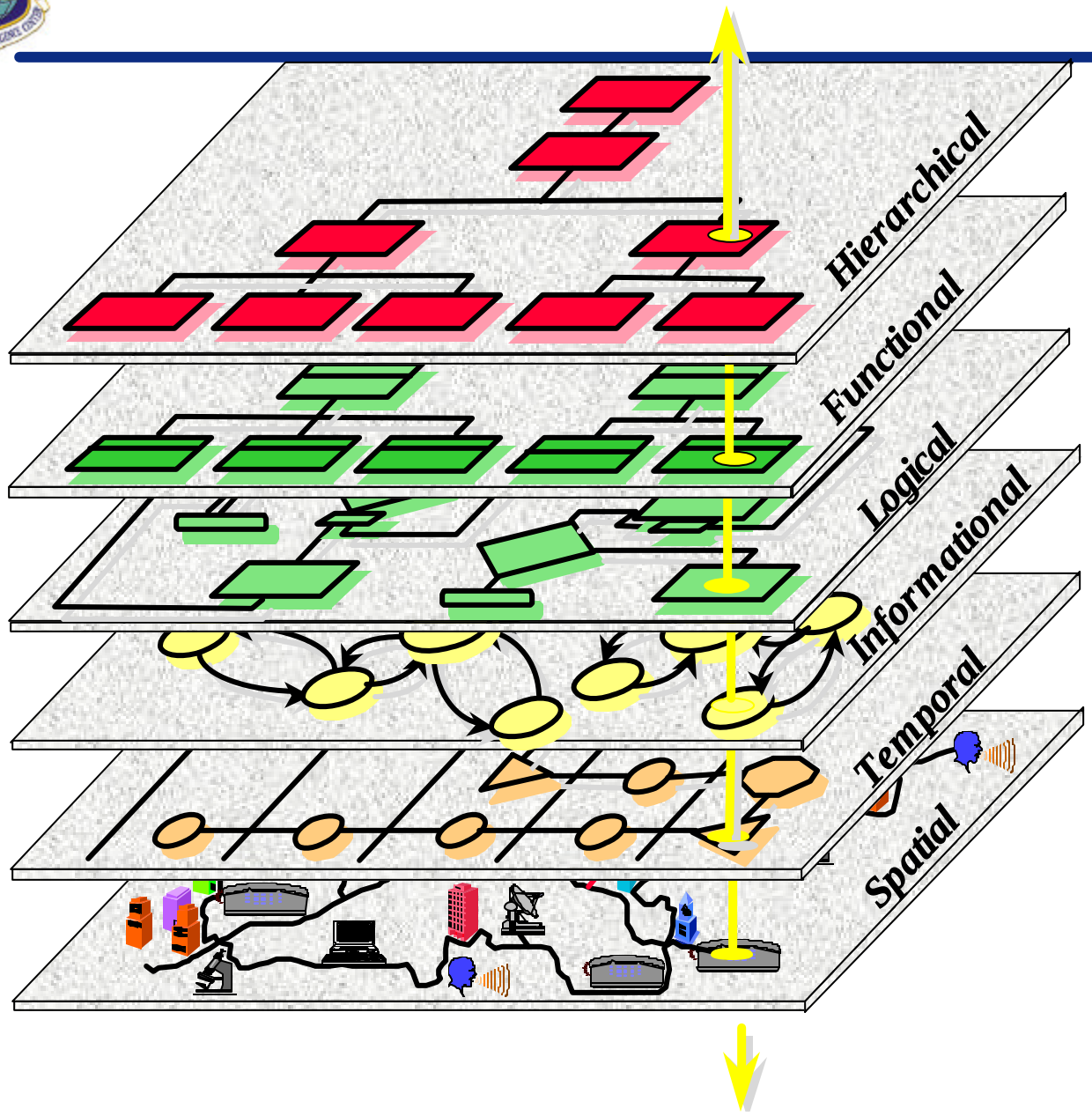
IO Production Framework



DIODE Demo

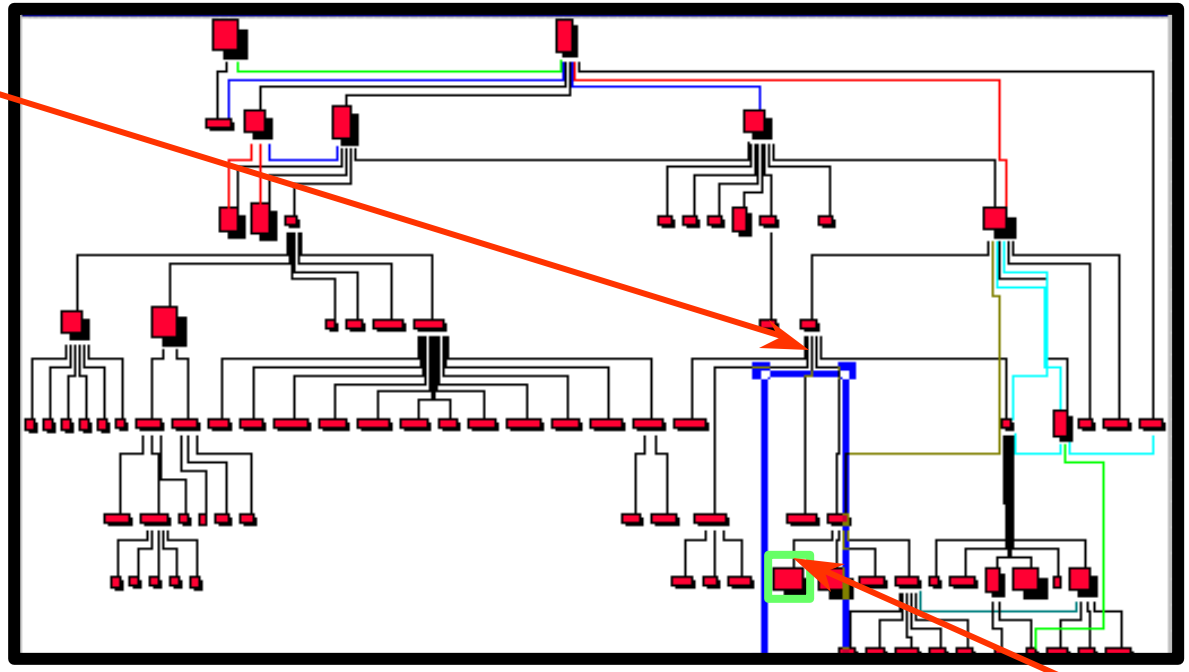

NAIC DIODE
IO
Missiles
Foreign Computer Networks
Air Defense
Denial and Deception
C2 Networks
Air
IO
C2 Processes
National

Information Space



Hierarchical Domain

Navigate graphically



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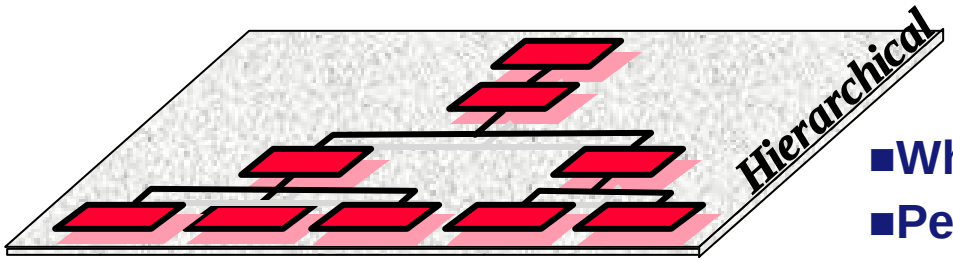
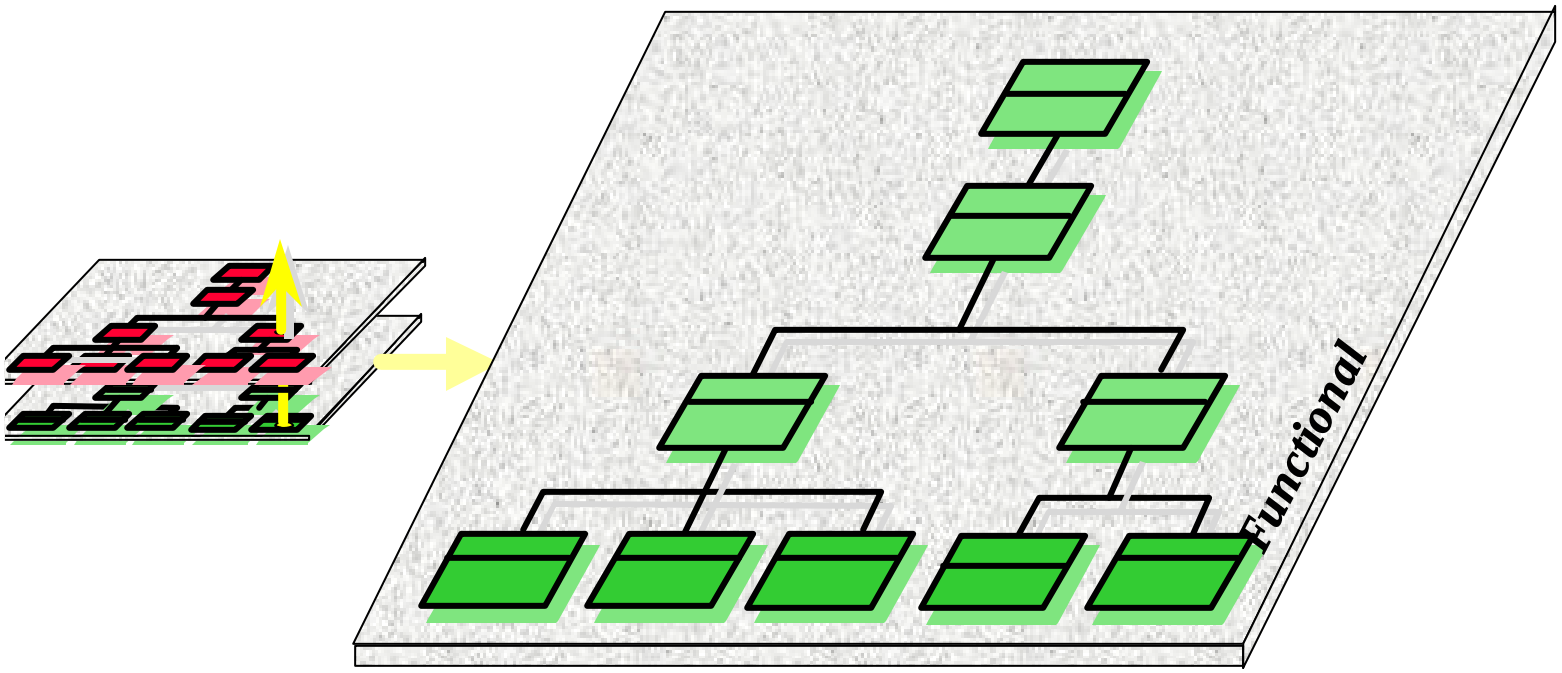


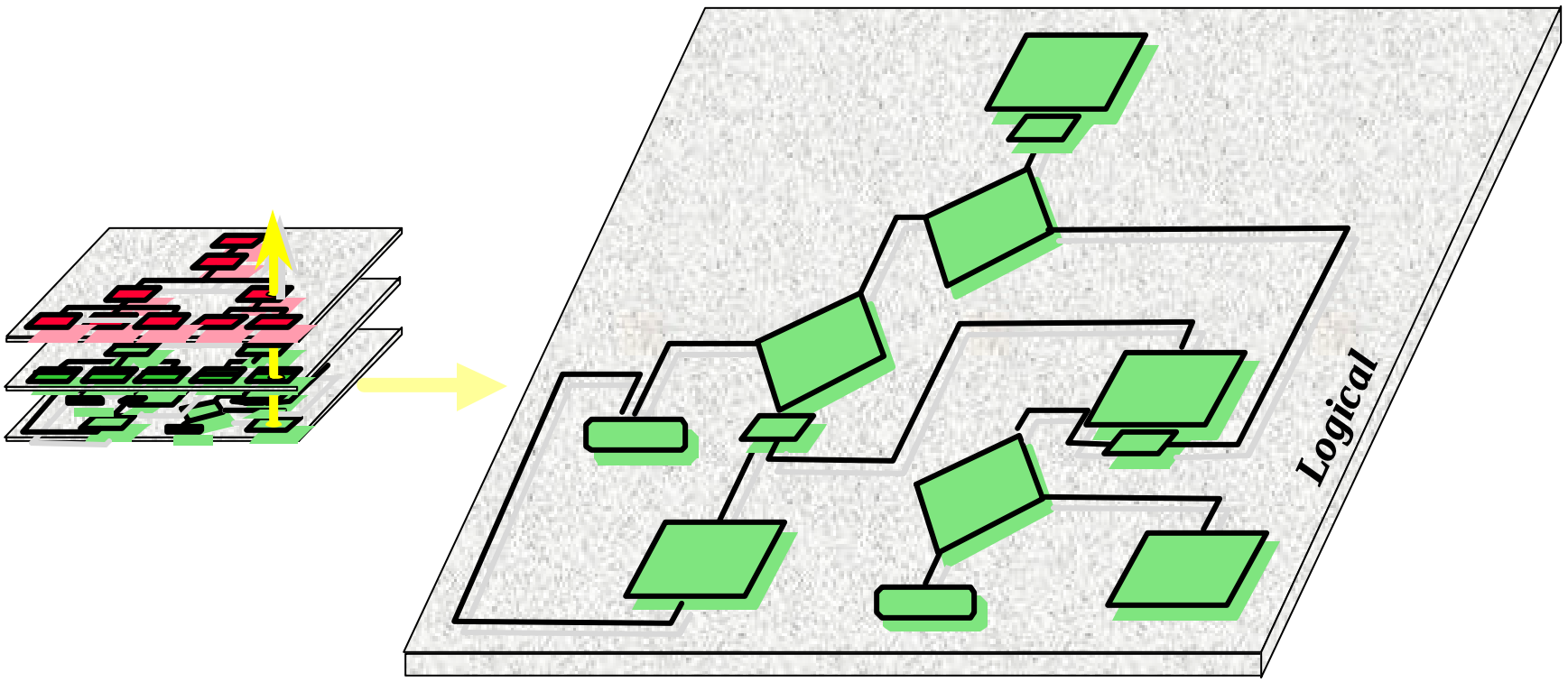
- Who's who
- Pecking Order

Functional Domain



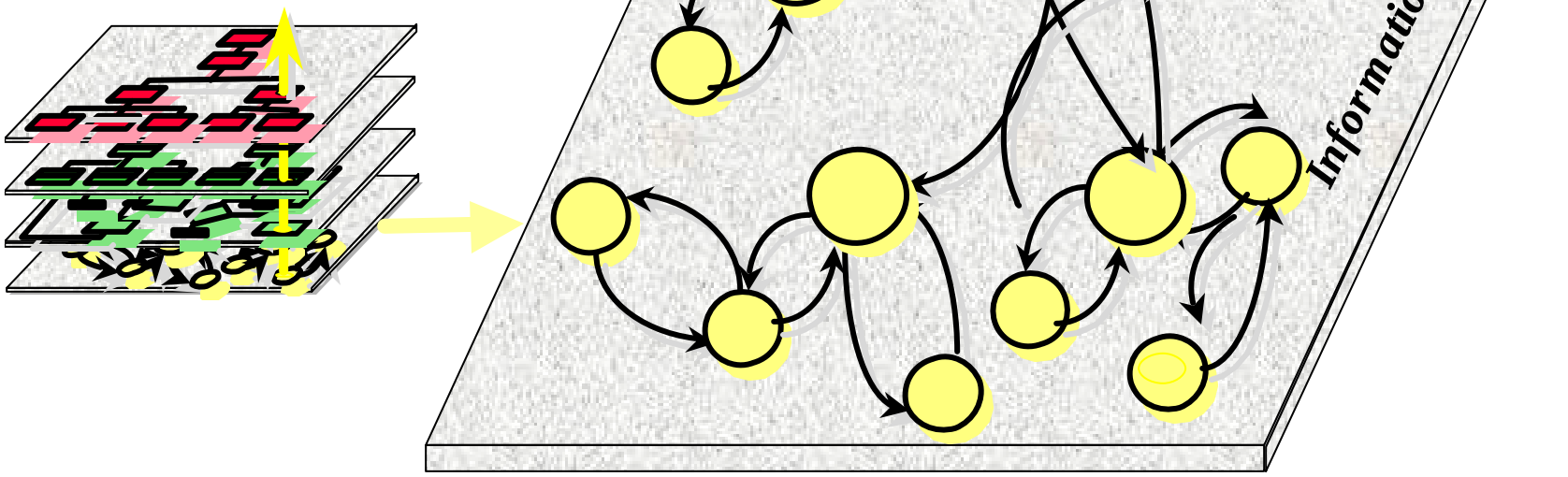
- Who does what?
- The Real Decision-making Process

Logical Domain



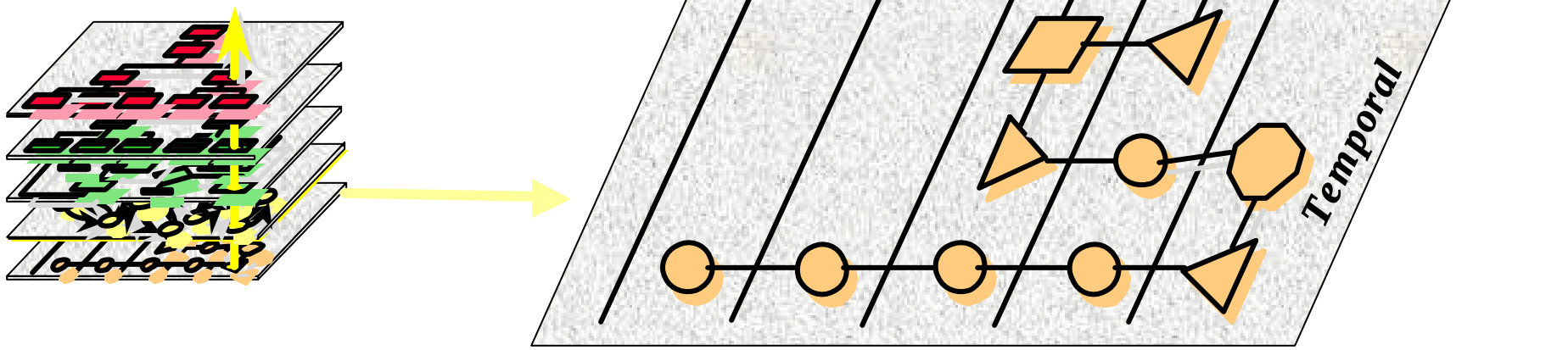
- Process order
- Alternative paths
- Feedback loops

Informational Domain



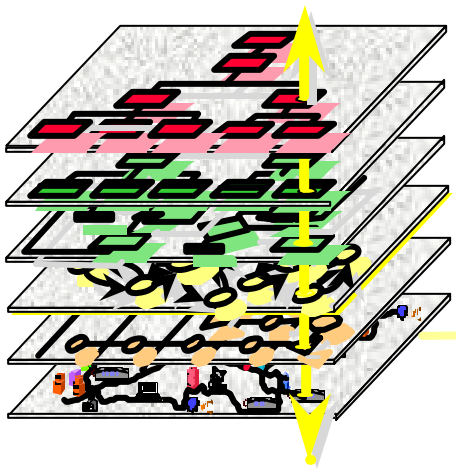
- Who talks with Whom?
- About?
- By what means?

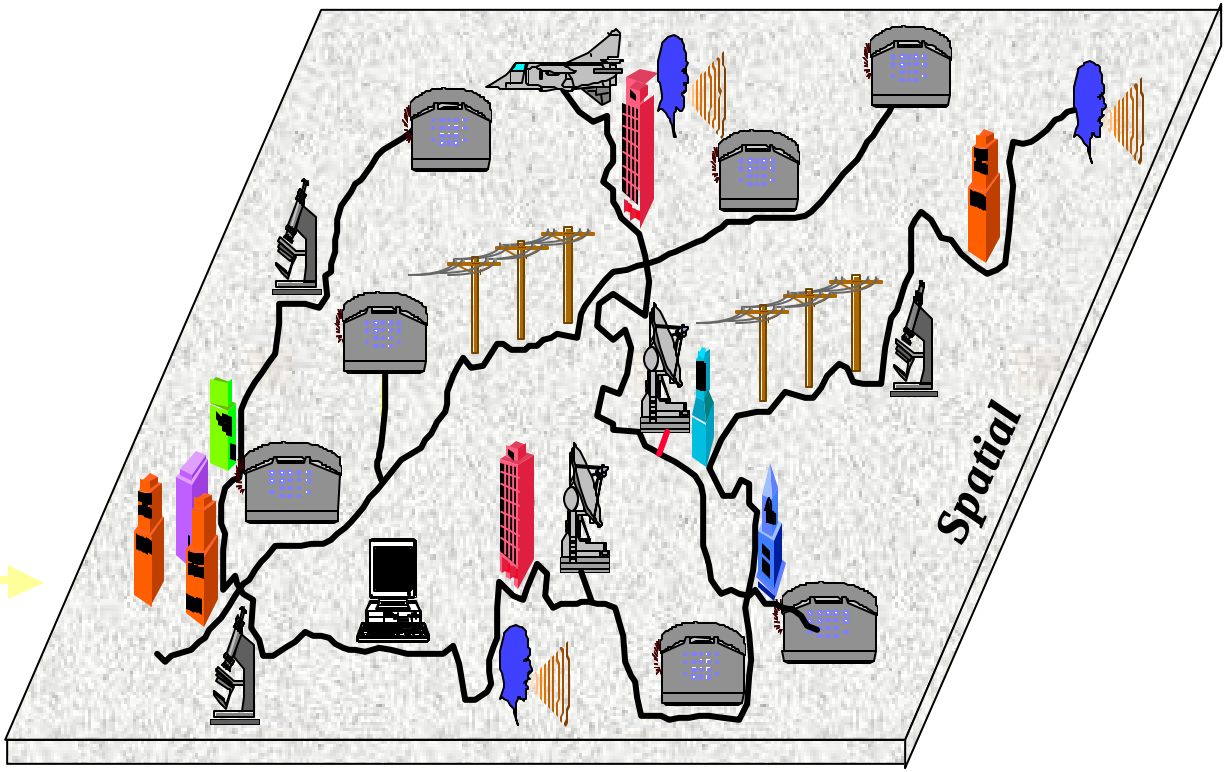
Temporal Domain



- Time a process takes

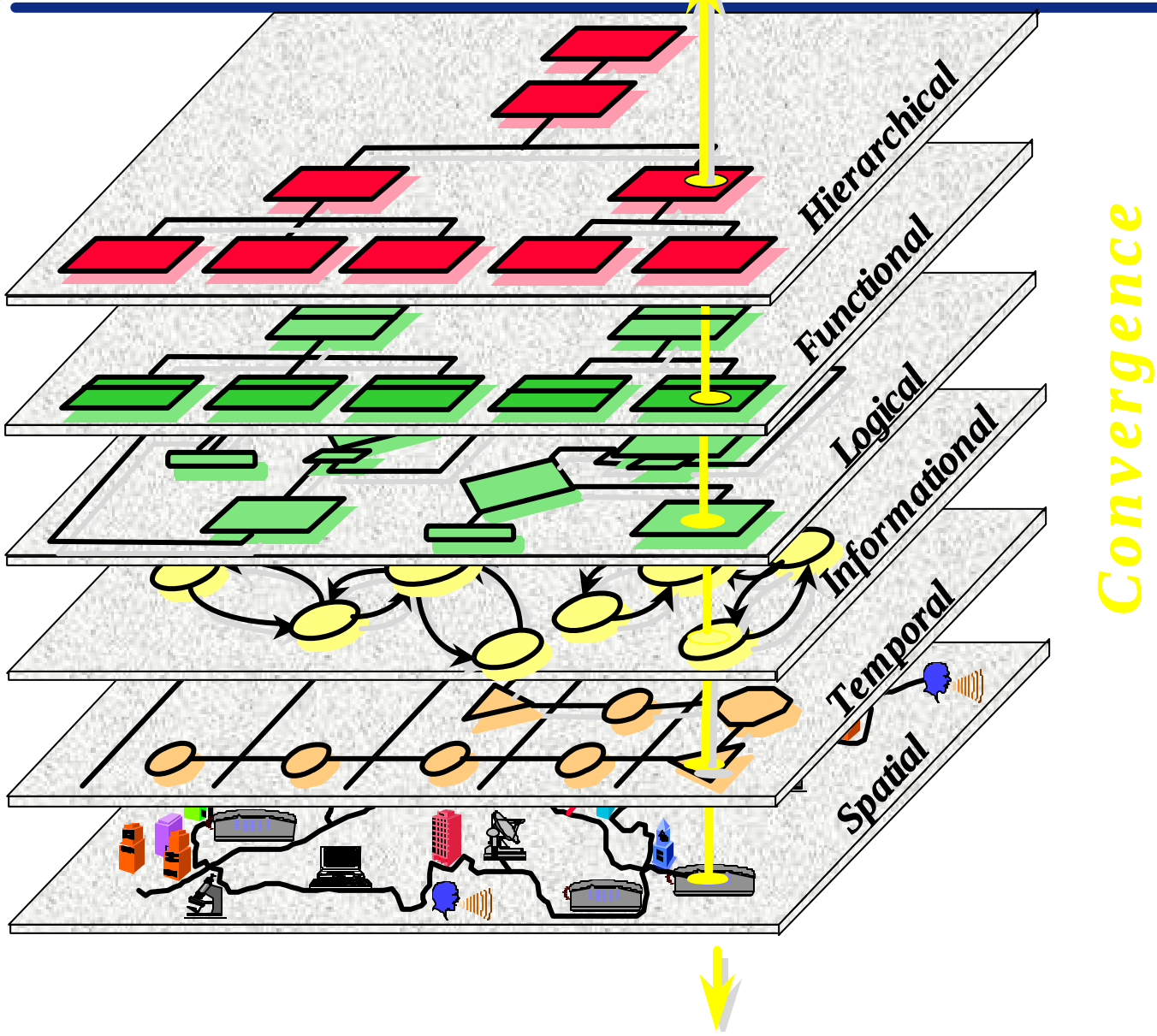
Spatial Domain





- Where does something happen?

Information Space



DIODE Homepage

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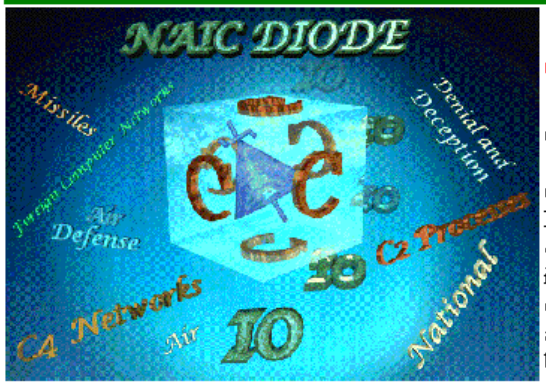

(U) DIODE

(U) Dynamic Information Operations Decision Environment

(U) The Dynamic Information Operations Decision Environment (DIODE) is the culmination of NAIC's Information Operations (IO) analytical process made available on Intelink. The DIODE takes the information operator and planner from a basic understanding of "What" to a clear picture of understanding the "So What." Rich in technical detail, DIODE integrates all-source intelligence about national leadership and military command and control (C2) processes, fixed telecommunications infrastructure (NAIC Links and Nodes), computer networks; and air defense C2 networks, systems, and signals. The DIODE's interdisciplinary, analytical approach is enhanced by high-fidelity engineering-level modeling projects that enable NAIC analysts to confidently project hypothetical scenarios and excursions based on observed data. NAIC's DIODE provides a foundation for information operators and planners to access tailored C4 information that meets their particular mission objectives.

(U) The concept of information operations has almost as many definitions as it has proponents. Every definition however, presupposes a faithful, detailed understanding of the target as a synergistic system. This need for fidelity demands the integration of C2 processes, information systems, and air defense C2 networks, systems and signals. At this time DIODE is unique in its treatment of these three areas. DIODE represents an all-source approach to defining target systems within the context of mission objectives. The target of an information operation must be the information itself. The information or information system becomes important only within the context of a course of action that supports a clearly defined mission objective. Lists of "critical nodes" are meaningless unless they are the response to the question, "Critical to what?" DIODE addresses this question by examining C2 as a process, not an artifact. Find out more

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(U) DIODE will be updated to version 9 during the week of Oct 22-28. Products will be updated individually, causing a different look between certain products. Please bear with us as we work to improve and make a better product for you.

(U) Finished DIODE Products (with Mission Objectives)

- (U) Iran DIODE
- (U) Iraq DIODE **Updated:** 28-SEP-2001, 16-MAY-2001
- (U) North Korea DIODE **Updated:** 30-JUL-2001

DIODE Next Steps

- **Provide timely DIODE updates: Pre-positioning**
  - **Enhance Oracle database attributes**
  - **Improved visualizations**
    - **Mapping**
    - **Incorporation of JIMO selected link analysis and visualization tool**
      - **Visual Links tool selected**
  - **“Regional” database available in DIODE V9.0**
  - **Database loading tools**

DIODE Next Steps (cont.)

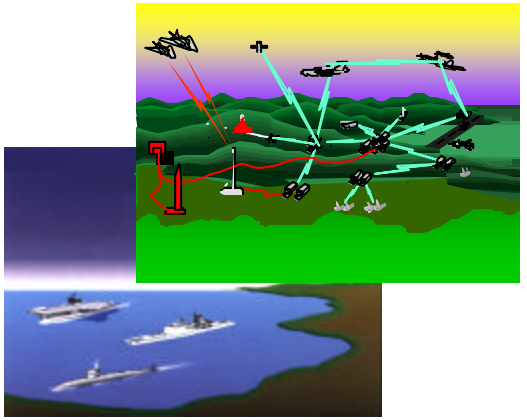
- **Position DIODE as the community-wide IO database**
  - **Collaborating with ONI-24 and NGIC on JIVA initiative**
  - **NAIC coordinates and integrates Joint DIODE**

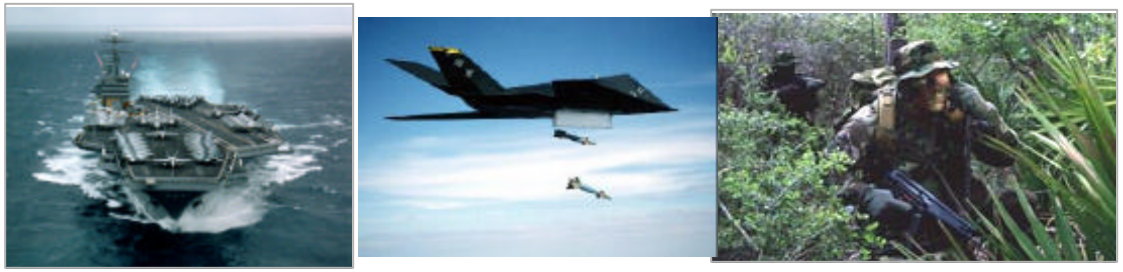
"The only database that delivers the level of intelligence for operational planning for IO is NAIC's DIODE"

- ONI

Joint DIODE

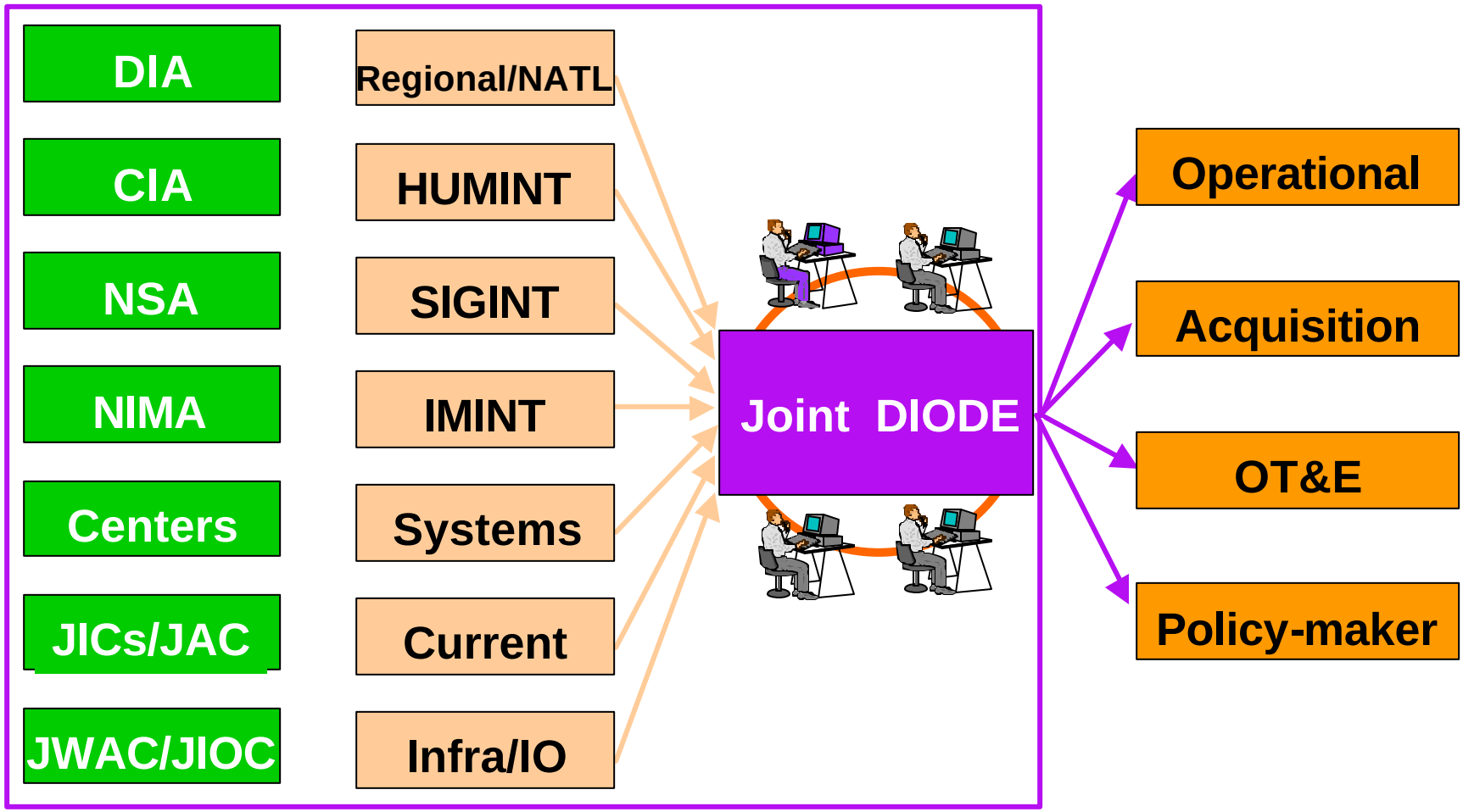
- JIVA C4ISR COI Initiative
  - Collaborative Production with ONI
- DIODE Core Information Model
- Expand DIODE…all service...all areas of IO
- NAIC--Executive Agent & Assessment Coordinator





Full-Spectrum Knowledge Base for Targeting

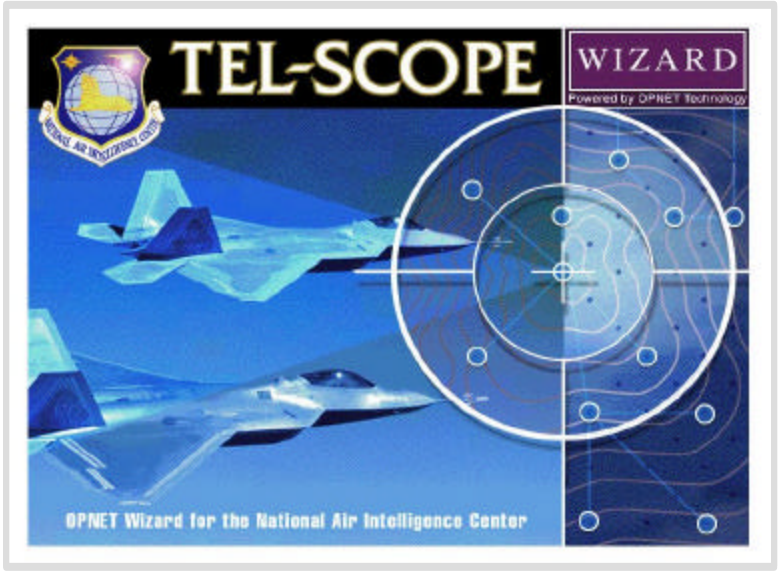
What the Customer Receives



Customers get one-stop shopping and consistent, validated intelligence

TEL-SCOPE

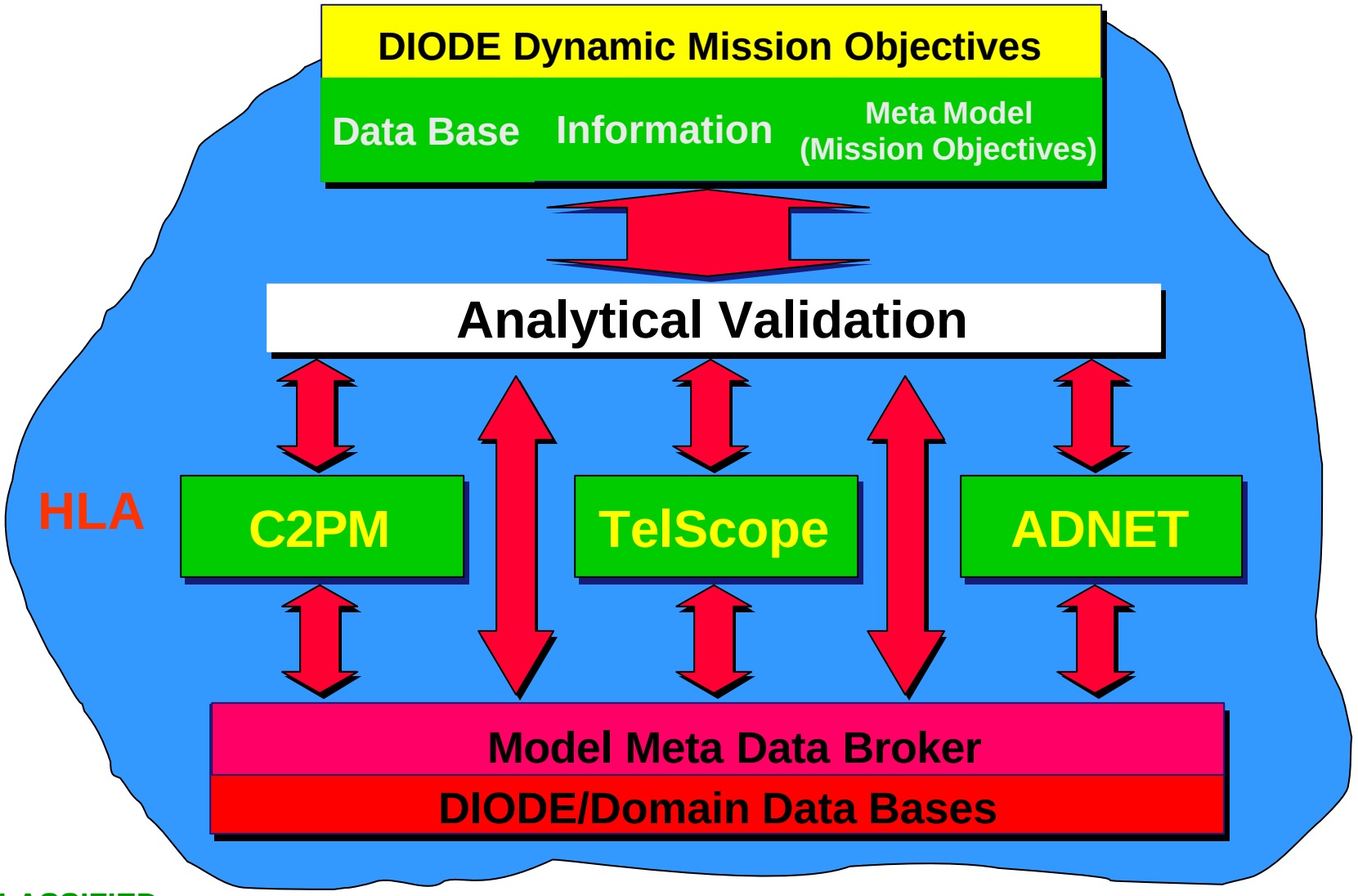
- Overlay adversary's C2 and AD assets with telecommunications backbone
- Models communications based on engineering principles
- Incorporates country doctrine
- Identifies critical nodes
- Allows "What If" analysis
- Used by operational planners and targeteers.



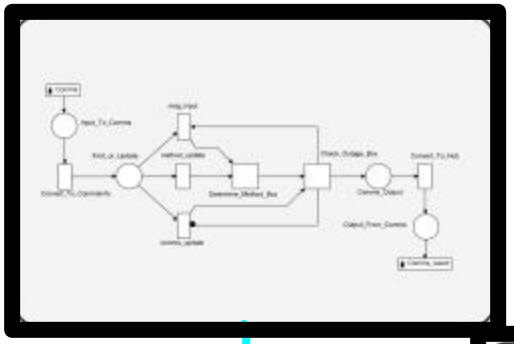
How does it work?

- Ties C2 processes and assets into national backbone
- Generates traffic based on C2 profiles
- Shows physical routes for telecom traffic
- Routes traffic through backbone using:
  - Telecom engineering principles
  - Country doctrine
  - Current network status
- Displays graphics indicating traffic paths
- Generates results in HTML reports

Dynamic Mission Objectives Modeling

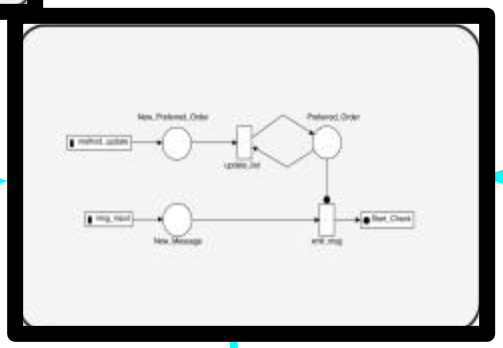


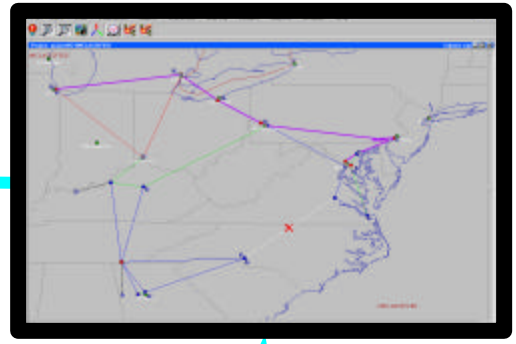
Modeling Integration Example

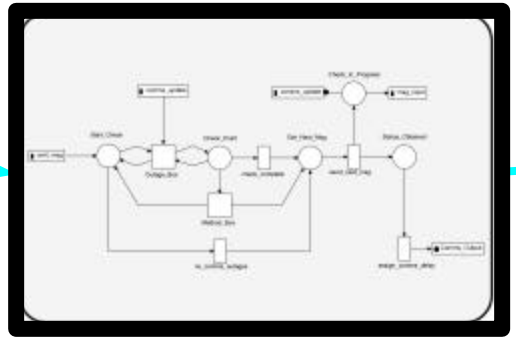


***Comms* PN Represents Communications Logic Flow and Delays**

Tel-Scope
Generated Simulation







Check_Outage_Box PN
Checks for Comms Outages

Summary

- DIODE
  - Synergistic all-source IO analysis
  - Single integrated IO product
  - Foundation for Joint database
  - Critical to contingency operations
  - Proven process

The process is the product!